

FACTSHEET

Plant Protection & Quarantine

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Slow the Spread

Since its introduction into the United States in 1869, the gypsy moth (*Lymantria dispar*), a pest of trees, has defoliated thousands of acres of hardwood forests across the Northeastern United States.

Originally introduced into Massachusetts, the gypsy moth has slowly spread north to Maine and south to North Carolina, infesting a total of 16 States. Despite State and local control efforts, the infestation continues to move south and west.

In an attempt to improve management strategies against the gypsy moth, the U.S. Department of Agriculture's (USDA) Forest Service (FS), in cooperation with the Animal and Plant Health Inspection Service (APHIS), the States of Michigan, North Carolina, Virginia, and West Virginia, and the Department of Interior's National Park Service, have embarked on a 4- to 5-year pilot project called "Slow the Spread."

The Slow-the-Spread Pilot Project

The goal of the pilot project is to determine if detection and control strategies can slow the spread of the gypsy moth over a large geographic area. If the gypsy moth's advance can be limited, Slow the Spread could be expanded to include more areas.

The project area is located ahead of the advancing front of the gypsy moth population. The focus of the project is on early detection and suppression of the low-level populations detected along this advancing front, disrupting the normal cycle of population buildup and spread. The project will attempt to use the most environmentally sensitive control tactics to meet project objectives.

The project has two main thrusts:

- **Trapping**

Gypsy moth populations will be monitored by placing a grid of pheromone-baited traps to allow early detection of gypsy moth populations in areas thought to be uninfested. Once the extent of an infestation is determined, control efforts can be conducted..

- **Suppression**

A number of treatment options are available for suppression of the insect. Options include mating disruption with pheromone flakes, which contain the female sex attractant; mass trapping; releases of sterile insects; and spraying with *Bacillus thuringiensis* (Bt), diflubenzuron (except in Michigan), or Gypchek. Pheromone flakes interfere with population buildup by disrupting normal gypsy moth mating. Mass trapping involves the intensive use of pheromone-baited traps to capture most of the males in the area. Sterile insect treatments involve releasing gypsy moths that have been treated so that their offspring are not viable, further lessening the reproduction of moths in the wild. Commonly found in the soil, Bt is a naturally occurring bacterium that causes caterpillars to stop feeding, resulting in starvation. Diflubenzuron interferes with the natural development of gypsy moths, causing death. Gypchek is the name of a naturally occurring virus that attacks the internal tissue of the pest, killing it.

Mating disruption, mass trapping, releasing sterile life stages, and spraying Gypchek are strategies that affect only the gypsy moth. Diflubenzuron has no known effect on vertebrates but does affect most invertebrates. Bt has a broader range of impacts as it can affect the caterpillars of other moths and butterflies. It has no known direct effect on animals other than insects.

Life Cycle and Appearance

The gypsy moth life cycle has four stages: egg, larva, pupa and adult moth.

The female moth lays egg masses in July and August in clusters of 100 to 1,000. While most eggs are laid on the bark of trees, females will also lay clusters in any sheltered location, including homes, vehicles, firewood, playground equipment, and stones. Egg masses are beige and about the size of a quarter.

Larvae (caterpillars) emerge the following April or May and begin devouring leaves. The caterpillar stage lasts for 10 to 12 weeks. Caterpillars are 1 to 2 inches long when full grown, with hairlike structures along the entire length of their body.

Caterpillars are grayish with five pairs of blue spots and six pairs of red spots along their back. There are yellow markings on the head.

From June to August, larvae enter the pupal or resting stage, where transformation from caterpillar to moth takes place during a 10- to 14-day period.

Pupae are reddish-brown. Male pupae are about ½ inch long; females, about 1 inch long.

Male moths have a wingspread of 1 inches. They are light tan to dark brown and have blackish wavy bands across their forewings with arrowhead markings near the leading edge. Female moths are nearly white with faint, dark wavy bands on the forewings. They are much larger than the males, with a wingspread of up to 2 inches, but they do not fly. The antennae have a feathered appearance in the males but are long and thin in the females. The adult moths do not feed and live for only a few days.

Gypsy Moth Damage

In its caterpillar stage, the gypsy moth can feed on more than 500 different species of trees and shrubs. Millions of acres of trees are defoliated every year. In 1981, a record 12.9 million acres were defoliated.

Heavy gypsy moth defoliation for even 1 year can cause some tree mortality; defoliation for 2 or more years in a row in one area often kills most of the affected trees. The amount of tree mortality is dependent on the health of the tree at the time of defoliation. Factors affecting mortality include tree species, soil moisture, and other stresses. Trees stressed by drought or other poor growing conditions are less likely to recover after repeated defoliation.

In heavy infestations in forested residential areas, the larvae can be a nuisance by swarming around homes and buildings.

History

Gypsy moths are native to Europe, Asia, and North Africa. They were brought to America in 1869 by a French naturalist trying to breed them with silkworms. Some of the larvae escaped during his experiments in Medford, MA. Within a few years, the insect became established in the surrounding woodlands. The first major outbreak occurred in 1889.

Today, the gypsy moth infests all of Maine, Vermont, New Hampshire, Massachusetts, New Jersey, New York, Rhode Island, Connecticut, Pennsylvania, and Maryland and parts of Ohio, Michigan, West Virginia, Virginia, North Carolina, and Illinois.

Slow-the-Spread Areas

The Slow-the-Spread pilot project will involve parts of the following counties:

Michigan: Alger, Delta, and Schoolcraft.

North Carolina: Bertie, Caswell, Chowan, Gates, Halifax, Hertford, Martin, Northampton, Pasquotank, Perquimans, Person, Rockingham, and small portions of adjacent counties.

Virginia: Alleghany, Bedford, Bland, Carroll, Craig, Floyd, Franklin, Giles, Henry, Montgomery, Pulaski, Roanoke, Tazewell, and Wythe.

West Virginia: Fayette, Greenbrier, Mercer, Monroe, Raleigh, and Summers.

For more information about Slow the Spread, write to the following addresses:

Slow-the-Spread Project
USDA, FS
P.O. Box 2680
Asheville, NC 28802

USDA, APHIS
Room 643, Federal Building
6505 Belcrest Road
Hyattsville, MD 20782

Bill Dickerson
North Carolina Department of Agriculture
P.O. Box 27647
Raleigh, NC 27611

Ron Priest
Michigan Department of Agriculture
P.O. Box 30017
Lansing, MI 48909

Charles Coffman
West Virginia Department of Agriculture
1900 Kanawha Blvd., East
Charleston, WV 25305

George Anderson
Virginia Department of Agriculture and
Consumer Services
307 Church Street
Blacksburg, VA 24060